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The future of carbon accounting research: "We've pissed mother nature off, big time"

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Introduction

The Australian bushfires of the last three months have been another awakening moment. Mendel (2020) has recently interviewed Australians coming back home, and they spoke crudely about our failure to tackle climate breakdown: "We've pissed mother nature off big time, and she's paying us back". This echoed Allen White's speech at UN Research Institute for Social Development (UNRISD) in 2019, citing the cultural historian and theologian Thomas Berry: "We can be sure that whatever fictions exist in Wall Street bookkeeping, the earth is a faithful scribe, a faultless calculator, a superb bookkeeper; we will be held responsible for every bit of our economic folly" (White, 2019). If Mother Earth is an accountant, then we need to consider her budget. This is a notion that Greta Thunberg has popularized, citing the Intergovernmental Panel on Climate Change (IPCC) 2018 report. According to that report (2018), there is a limit of 420 gigatons of carbon to emit, if we want to have a chance of keep the increase of

temperatures to 1.5 degrees. This leads us to rethink, what our role as accounting researcher should and could be.

Moreover, there has been no lack of reminders of the climate breakdown in the last few months, especially in the business world. In April 2019, Norway renounced USD 65 billion when it stopped the offshore drilling project near the Lofoten Islands (Mer Océan, 2019). According to a report by the Carbon Tracker (2019) and experts in the industry, the "Big Oil" are directly facing stranded assets: "the massive investments by XOM and Shell in particular are at great risk to becoming stranded assets. Shell simply can't greenlight 35 new oil and gas projects by 2025. Nor can XOM spend more than $30 billion annually on new projects in a similar time frame" (Williams, 2019). Bebbington *et al.* (2020) researched the building up of "unburnable" reserves in the financial accounts of oil companies, as climate change threats build up. Microsoft made the boldest climate related organizational claim that "by 2030 Microsoft will remove more carbon than it emits, setting us on a path to remove by 2050 all the carbon the company has emitted either directly or by electrical consumption since it was founded in 1975" (Smith, 2020).

Our special issue has touched upon several key issues that we, as business scholars, can help tackle through further research. First, the paper by Martineau and Lafontaine (2020), is targeting a key issue in climate change accounting: how it can actually disconnect us from nature, leading accounting to be more a threat, than a solution. Second, Lebreton and Aggeri (2020) are developing an analysis of the systemic change that needs to happen, analyzing the "*dispositif*" that France has put in place to structure carbon accounting in the last 10 years. Third, Mohammed (2020) has developed a critical analysis of climate change policies in Nigeria. As climate breakdown is hurting mostly developing countries and minorities, it is our

duty, as researchers, to analyze and inform climate breakdown in those countries, and fight against the western bias of our own research (Howard-Grenville *et al.*, 2019). Last but not least, three papers discuss the future of GHG accounting. First, we know that quality in GHG reporting is still lacking, and Pitrakkos and Maroun (2020) discuss how this could be improved. Second, Faria and Labutong (2020) discuss the different methods of the much need science-based targets. Last, Revellino (2020) and Faria (2020) engage in the discussion of "avoided emissions" and their role in the future of a climate-ready world.

1. Climate change is a systemic and social issue – and we must not ignore it.

"It is remarkable that we keep thinking of problems that are caused by humans, that inflict harm on humans (and the life support systems on which they depend), and that can only be solved by humans, in terms of their biophysical nature–as matters of molecules, shifts in atmospheric dynamics or ecosystem interactions, imbalances in elemental cycles, or merely as collapsing environmental systems" (Hackman *et al.*, 2014). Since we have entered the Anthropocene (Bebbington *et al.*, 2019), the social and the environmental are now intrinsically linked. We now know that environmental change is driven by human action, and that in return it will drive changes in our social and economic system. Therefore, it is urgent to reconsider how accounting, and GHG accounting in particular, can be understood as not just a technical tool, but a socially embedded tool that will participate, or not, in driving this system conversion.

In our special issue, Martineau and Lafontaine (2020) explore the dark side of accounting for carbon, is when it actually disconnects us from nature. They suggest that the implementation of carbon accounting tools is involved in a process of "commodification of nature", which in turn has led managers to "forget nature" when they are making decisions. The objectivity of

numbers alleviates the emotional dimension of managers relationship with nature and transforms it into a rational relationship. The authors argue that the forgetting of nature is due to both the complexity of carbon accounting devices and the rationality of the outcome. This unexpected outcome—the forgetting of nature—is problematic because it comes in tension with the very objective of carbon accounting which is to account for nature. Recently, organizational scholars have called to reconsider the role of emotions, notably in tackling grand challenges (Barbera-Tomas *et al.*, 2019), as they are "deeply connected to social processes at societal, interorganizational, organizational and interpersonal levels" (Zietsma *et al.*, 2019).

Climate change is also clearly more than just a technical and scientific issue that can be summarized in the IPCC reports. It has had huge consequences on poverty (SDG 1), on hunger (SDG 2), on health (SDG 4), on gender inequality (SDG 5), on the oceans (SDG 14), on biodiversity (SDG 15), and on conflicts (SDG 16). For example, according to Rao (2019), "it's often overlooked that climate change will affect one half of humanity significantly more than the other". In a report published in 2020, the International Union for Conservation of Nature (IUCN) confirmed that gender inequality was pervasive in all areas of the environment: access to and control of natural resources; environmental pressure and threats; and environmental action to defend and conserve ecosystems and resources (Castañeda Camey *et al.*, 2020). According to Mary Robinson (Harvey, 2018): "Climate change is a manmade problem that requires a feminist solution". It is maybe time to revive reflections on the link between feminism and environmental accounting – this time, with aim to bring new solutions to GHG accounting (Cooper, 1992; Cooper and Senkl, 2016).

Finally, the Australian bushfires have made the link between climate breakdown and biodiversity loss immediate and visible. According to researchers, more than one billion

animals have perished in the last few months (Ward *et al.*, 2020). Climate change is a "grand challenge" (Ferraro *et al.*, 2015; George *et al.*, 2016) that necessitate system-thinking and interdisciplinary research and action (Bebbington and Larrinaga, 2014; Williams *et al.*, 2017, Bansal and Song, 2017; Schad and Bansal, 2018).

2. Climate change requires a multi-layered transition apparatus.

Structural change is required to fix climate breakdown. Multi-level framework research and action are necessary to unbundle this grand challenge (Slawinski *et al*., 2017). A number of high-level reports have pointed out to the inconsistencies of our fight against the climate crisis. The Haut Conseil pour le Climat (High Council for Climate) in France has asked for public policies to be aligned with climate ambitions, and the 2050 carbon neutral agenda (HCC, 2019). Our students have written "manifests" (Le Reveil Ecologique, 2018) to target both business organizations that were about to employ them, and business schools, about our inconsistencies in our preparation of the next generation to a climate ready world. Research, and education, as fundamental institutions of today's world, have been challenged and urged to tackled climate change. Ansari *et al.* (2011) have urged us to look at climate change as a "provocateur", "enticing us to rethink our wider social goals about how and why we live on the planet" and Adams *et al.* (2011) have identified three challenges for business education: push the boundaries of organizations and consider stakeholder relationships, teach critical self-reflection for business students and future leaders, and adopt critical social sciences as the lens through which business should be taught.

One other institution has to change. Our professions have not yet adapted to climate change. However, there has been several indications that this is changing. The Prince of Wales

Accounting for Sustainability Project has gathered CFOs around sustainability since 2010. King and Atkins (2016) have coined the term "Chief Value Officer" to call for a more inclusive way of looking at the role of the CFO. Gibassier *et al.* (2018) further developed the role of the "sustainability CFO". More recently, Palmeiro and Gibassier (2020) argued that the CFO would become the next climate leader to follow. Indeed, several factors, including investor pressure, and the development of accounting standards, are making climate change a CFO's business. The French accounting-related professional groups (auditing, controlling, internal auditing and control) and the sustainability chief officer group have united in early 2020 to launch a common platform, which will drive their professions to embed sustainability within their role. This is a world premiere, indicating that there is no going back: the accounting profession must and will change.

Responsibility and accountability for climate change under the Anthropocene will change the way in which we need to govern. The impacts, interrelated, collective, in complex socio-ecological systems, will blur the possibility to clearly identify responsibilities. Individual responsibilities will not matter, as impacts will give rise to system-wide effects. Therefore Bebbington *et al.* (2020) propose to review our concepts of governance to draw on the idea of "stewardship", and "keystone actors". This will allow to think about accounting and accountability of climate change in a systemic, multi-layered manner.

Considering the need to overhaul our institutions to tackle climate breakdown, and drawing on Foucault's notion of strategic *dispositif,* Aggeri and LeBreton (2020) examine the incorporation of carbon accounting tools into wider networks of actors and resources. The authors propose that the ability of carbon accounting tools to infuse firm-level strategy and to materialize into effective low-carbon actions at the firm-level relates to their incorporation into a specific

strategic *dispositif*. The practical implications from this study is that actors in the field of climate change do not naturally know how to deal with the "numbers" that are the outcome of carbon accounting. The ability of field actors to make sense of these numbers and incorporate them into firm-level strategies depends on the configuration of the strategic *dispositif* that carbon accounting tools are embedded in.

3. Climate vulnerability

The voices of the vulnerable, including developing countries and women, is starting to be heard, as "the most vulnerable already face death row" (president Hilda Heine of the Marshall Islands, COP 25, 2019). The Climate Vulnerable Forum, a South-South initiative that has held the voices of climate vulnerable countries for the last 10 years, is asking to reverse the greatest injustice, that is that "climate change affects most those who are least responsible" (CVF, 2019). For example, in the Philippines, "climate-induced disasters frequently disrupt fruit and cash-crop production, resulting in income loss and higher food price" but also consequently drive female migration, making them vulnerable to trafficking and sexual abuse (Chandra and McNamara, 2017). The consequences of the climate crisis range from displacement to land clearances and fossil fuel extractions. These accentuate disparity in resources to adapt to climate change. Some are arguing that the impact of climate change plays out the same way that colonialism did (Bumpus and Liverman, 2011). While there have been papers on accounting for refugees (Young, 2010), we must accelerate our thinking on how GHG accounting plays a role, especially in the compensation market, in climate vulnerability and inequalities.

Acknowledging the criticalities of carbon emissions from gas flaring in Nigeria, Mohammed (2020) presents the potential for the Clean Development Mechanism (CDM) to reduce carbon

emission in the Nigerian oil and gas industry. The review of the Nigerian government policies to eliminate gas flaring over the period 1960-2016 reveals that the desired results are not achieved but the paper also shows some examples of specific CDM projects that have been effective and therefore identifies best practices that can move the industry forward. It is critical to review climate change policy and consequences in context such as Africa, and this paper is a good example of where we need to further our efforts.

4. The future of carbon accounting: quality, science-based targets and avoided emissions.

The contribution following Mohammed (2020) focuses on a relatively debated issue in disclosure studies, i.e. the concepts of quality vs. quantity of disclosure, with specific reference to greenhouse gas emissions. Pitrakkos and Maroun (2020) analyze both companies with large and small carbon footprints, as well as consider which disclosure media firms use (integrated vs. sustainability report). In line with a stream of prior literature, the evidence suggests that carbon disclosures are primarily driven by legitimacy motivations and that firms are reluctant to commit to high quality reporting. Quality is lacking because "there are many voluntary initiatives and frameworks to unify carbon accounting and target setting; some overlap but none have been universally adopted" (Nasralla and Bousso, 2019), and "a plethora of third party ESG verifier companies" (Nasralla and Bousso, 2019), making carbon accounting a maze that investors must navigate.

Whiteman *et al.* (2013) have introduced the concept of planetary boundaries to management research, a concept that has been implemented in practice through "science-based targets" for climate change. Faria and Labutong (2020) provide an interdisciplinary contribution to the debate on carbon accounting by comparing four different science-based methods to set targets

for greenhouse gases. This paper illustrates that mitigation scenarios play an important role in target setting as much as the allocation principle does. The discussion leads to a normative statement that firms should consider simulations that are well below the 2C targets and encourages policy makers to support firms in relying on science-based targets in their GHG emission policies.

In the race to tackle climate change, there have been calls to develop a low-carbon economy and new low-carbon business models. Often, low-carbon business models appeal to the concept of avoided emissions, to account for how they compare with "normal" business models, which emit carbon emissions. This is the case with car sharing for example. In existing business models, certain companies are making changes to their value proposition as to help clients avoid emissions. Our two last papers (Revellino, 2020; Faria, 2020) discuss how this concept can materialize into an organization's policy, and what it means for the future of climate change. While Revellino develops an account of how "climate change calculations become seductive forces for public engagement" through "the power of technical objects and their augmented calculative devices", Faria discusses the illusive definition of "avoided emissions" within carbon accounting standards, and criticizes its role in the future of accounting for the "absence" of emissions.

5. Future research

While the accounting community has already tackled GHG accounting through several special issues and literature reviews (Milne and Grubnic, 2011; Schaltegger and Csutora, 2012; Ascui, 2014), we believe that several key dimensions had been left unaddressed. Within this editorial, we have outlined a number of avenues for future research. First, we believe that carbon

accounting cannot be seen in isolation from its social nature, and its systemic interlink with other sustainable development goals. We urge researchers to work in interdisciplinary teams to inform how GHG accounting can progress to not become an impediment to the climate crisis (Martineau and Lafontaine, 2020), but a part of the solution. Second, we would like to further research into the arrangements that will support the transition that is necessary is all our institutions, from governmental infrastructures (Lebreton and Aggeri, 2020) to the impactful way in which research and education can drive foundational change (Ansari *et al.*, 2011; Adams *et al.* 2011). Mohammed (2020) and Howard-Grenville (2019) urges us to reconsider how our research unequally addresses climate breakdown, notably in developing countries. Finally, further research in carbon accounting will need to open the black box of carbon "management" accounting and climate governance (Burritt *et al.* 2011; Gibassier and Schaltegger, 2015; Vesty *et al.*, 2015), carbon accounting and SMEs (Conway, 2015), and avoided emissions (Revellino, 2020; Faria, 2020).

Lastly, we would emphasize the need to reconsider our research within the framework of planetary boundaries (Whiteman *et al.*, 2013; Faria and Labutong, 2020), and how the Anthropocene (Bebbington *et al.* 2019) will affect the way that we now account for sustainable development (Bebbington and Larrinaga, 2014; Taibi *et al.* 2020). We have not yet been transformational enough, and we certainly need to be.

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